

WHAT IS CLAIMED IS:

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1. A thin film transistor substrate, comprising:
a transparent insulating substrate;
a first thin film transistor that is formed on the
transparent insulating substrate; and

10 a second thin film transistor that is formed on the
transparent insulating substrate, the second thin film
transistor having a characteristic that differs from a
characteristic of the first thin film transistor;

15 wherein an active layer of the first thin film
transistor has a thickness greater than or equal to 50 nm,
and an average crystal grain diameter greater than or equal
to 1 μ m; and

20 an active layer of the second thin film transistor
has a thickness less than or equal to 60 nm, and an average
crystal grain diameter of less than 1 μ m.

25 2. The thin film transistor substrate as claimed in
claim 1, wherein the active layer of the first thin film
transistor corresponds to polycrystalline silicon that is
laterally crystallized through selective irradiation of a
continuous wave laser.

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35 3. The thin film transistor substrate as claimed in
claim 1, wherein the active layer of the second thin film
transistor corresponds to polycrystalline silicon that is
crystallized through irradiation of an excimer laser.

5 4. The thin film transistor substrate as claimed in
claim 1, wherein a gate insulating film of the first thin
film transistor is arranged to be thinner than a gate
insulating film of the second thin film transistor.

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15 5. The thin film transistor substrate as claimed in
claim 4, wherein the gate insulating film of the second thin
film transistor is arranged to have a film thickness greater
than equal to 80 nm.

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25 6. A thin film transistor substrate, comprising:
a transparent insulating substrate;
a first thin film transistor that is formed on the
transparent insulating substrate; and
a second thin film transistor that is formed on the
transparent insulating substrate, the second thin film
transistor having a characteristic that differs from a
characteristic of the first thin film transistor;
wherein an active layer of the first thin film
30 transistor has an average crystal grain diameter greater
than or equal to 1 μm , and an active layer of the second
thin film transistor has an average crystal grain diameter
less than 1 μm ; and
a gate insulating film of the first thin film
35 transistor is arranged to be thinner than a gate insulating
film of the second thin film transistor.

7. The thin film transistor substrate as claimed in
5 claim 6, wherein the active layer of the first thin film
transistor corresponds to polycrystalline silicon that is
laterally crystallized through selective irradiation of a
continuous wave laser.

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8. The thin film transistor substrate as claimed in
claim 6, wherein the active layer of the second thin film
15 transistor corresponds to polycrystalline silicon that is
crystallized through irradiation of an excimer laser.

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9. The thin film transistor substrate as claimed in
claim 6, wherein the gate insulating film of the second thin
film transistor is arranged to have a film greater than or
equal to 80 nm.

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10. A thin film transistor substrate manufacturing
30 method, comprising the steps of:

forming on a first region of a transparent insulating
substrate a first semiconductor film with a first film
thickness that is crystallized through excimer laser
irradiation;

35 forming on a second region of the transparent
insulating substrate a second semiconductor film that is
laterally crystallized through continuous wave laser

irradiation, the second semiconductor film being arranged to have a film thickness that is greater than or equal to the first film thickness;

5 forming a first thin film transistor on the first semiconductor film; and

forming on the second semiconductor film a second thin film transistor that operates at a speed greater than a speed of the first thin film transistor.

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11. The thin film transistor manufacturing method as claimed in claim 10, wherein the step of forming the 15 second semiconductor film includes selectively irradiating the continuous wave laser on a predetermined portion of an amorphous silicon film.

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12. The thin film transistor manufacturing method as claimed in claim 11, wherein the step of forming the second semiconductor film includes patterning the 25 amorphous silicon film into a predetermined shape, and irradiating the continuous wave laser on the patterned portion of the amorphous silicon film.

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13. The thin film transistor manufacturing method as claimed in claim 11, wherein the step of forming the second semiconductor film includes irradiating the 35 continuous wave laser on a predetermined portion of a solid amorphous silicon film.

14. The thin film transistor manufacturing method
5 as claimed in claim 10, wherein the step of forming the first
thin film transistor includes forming a first gate
insulating film; and

the step of forming the second thin film transistor
includes forming a second gate insulating film that is
10 thinner than the first gate insulating film.

15 15. A thin film transistor manufacturing method,
comprising the steps of:

forming on a first region of a transparent insulating
substrate a first semiconductor film that is crystallized
through excimer laser irradiation;

20 forming on a second region of the transparent
insulating substrate a second semiconductor film that is
laterally crystallized through continuous wave laser
irradiation;

25 forming a first thin film transistor on the first
semiconductor film via a first gate insulating film; and

forming a second thin film transistor on the second
semiconductor film via a second gate insulating film that
is thinner than the first gate insulating film.